

AD-A091 316

CENTER FOR NAVAL ANALYSES ALEXANDRIA VA INST OF NAVAL--ETC F/G 5/4  
AN INDICATOR OF INFORMAL EMPIRE: PATTERNS OF U.S. NAVY CRUISING--ETC(U)  
SEP 80 S S ROBERTS  
CNA-PP-295

UNCLASSIFIED

NL

1 of 1  
AD-A091 316

END  
DATE  
FILMED  
12-80  
DTIC

PROFESSIONAL PAPER 295 / September 1980

AD A091316

LEVEL

# AN INDICATOR OF INFORMAL EMPIRE: PATTERNS OF U.S. NAVY CRUISING ON OVERSEAS STATIONS, 1869-1897

Stephen S. Roberts

DTIC  
ELECTE  
NOV 3 1980  
S D C

DISTRIBUTION STATEMENT A

Approved for public release;  
Distribution Unlimited



CENTER FOR NAVAL ANALYSES

2000 North Beauregard Street, Alexandria, Virginia 22311

80 10 14 218/

The ideas expressed in this paper are those of the author.  
The paper does not necessarily represent the views of either  
the Center for Naval Analyses or the Department of Defense.

9  
PROFESSIONAL PAPER 295 / September 1980

2

11 Sep 80

6  
**AN INDICATOR OF  
INFORMAL EMPIRE:  
PATTERNS OF U.S. NAVY  
CRUISING ON OVERSEAS  
STATIONS, 1869-1897,**

10 Stephen S/Roberts

13 47

DTIC  
ELECTE  
NOV 3 1980  
C

14 CNA-PP-295



*Institute of Naval Studies*

**CENTER FOR NAVAL ANALYSES**

2000 North Beauregard Street, Alexandria, Virginia 22311

DISTRIBUTION STATEMENT A  
Approved for public release;  
Distribution unlimited

403542 alk

AN INDICATOR OF INFORMAL EMPIRE: PATTERNS OF U.S.  
NAVY CRUISING ON OVERSEAS STATIONS, 1869-1897

Several historians, notably Gallagher and Robinson in England and William Appleman Williams in the U.S., have expressed the theory that nineteenth century imperialism included not only the well-known formal empires but also what Gallagher and Robinson call "informal empire" over much of the rest of the world. They add that the latter was the preferred means of control, and that formal empire was resorted to only if informal methods failed.

These years were also the heyday of overseas cruising by the U.S. and major European navies. These navies put a large proportion of their resources into maintaining "station fleets" of cruisers and gunboats in nearly all parts of the world, often at the expense of the battle fleets at home. It seems that, if the concept of informal empire is valid, the activities of the station fleets must necessarily have been consistent with it, since these fleets were the primary representatives of U.S. and European military strength overseas and therefore would have been the primary

Classification	By	Availability Codes
Form 1	Distribution	Avail and/or
Form 2	Availability Codes	Special
Form 3	By	
Form 4		
Form 5		
Form 6		
Form 7		
Form 8		
Form 9		
Form 10		

*See file*

type of "police force" for whatever form of empire (or control, or influence) was in force.

The concept of informal empire as expounded by both the British and American writers includes the following propositions. Britain and the U.S. both had expanding economies of enormous strength (industrial in Britain, initially agricultural and later industrial in the U.S.). On the one hand, these economies could continue to grow only if they constantly developed new markets for their surplus products and venture capital. Their industrial sectors also needed reliable sources of raw materials and, in the case of Britain, food. On the other hand, each country believed that, if all restrictions on free trade were removed, its economy was strong enough to prevail over the competition and satisfy its needs. Overseas policies during the 19th Century in both the U.S. and Britain came to include two aspects: encouragement of the penetration of foreign economies by private economic interests; and political (including, if necessary, military) action to break down "artificial" barriers to this penetration, such as foreign monopolies and discriminatory commercial regulations, and to ensure a level of law and order and respect for financial obligations that

would enable commerce to flourish. The amount of political and military action needed depended entirely on the ability of local authorities to accept and implement these conditions. The U.S. had an additional objective: to prevent the militarily stronger European powers from replacing indigenous restrictions to free trade with new ones of their own.

Robinson and Gallagher provide a description of naval activity on foreign stations that they regard as consistent with the theory of informal empire. They state that the British used two types of agents, one political and one military to maintain their informal empire. The political agents were diplomatic representatives (consuls or residents) located at focal points in the foreign country. The military agent was the local naval commander, whose job it was to have a cruiser or gunboat visit each focal point periodically to show the flag and support the diplomatic representatives. The objective of this activity was to influence the local authorities in these focal points to provide in the areas under their control what England needed: law, order, and free trade. This influence was obtained through treaty or subsidy if possible,

and through threat or outright annexation if necessary.<sup>2</sup>

It is far from evident that U.S. Navy behavior during the latter 19th Century conformed to this model. Indeed, there are a number of possible patterns of operations for naval forces on foreign stations that would not be consistent with the concept of informal empire. The ships could have been kept constantly on the move, touching at many ports, small and large, just long enough to ensure that Western standards of behavior were remembered and respected. This pattern would emphasize direct police functions, since it would tend to bypass the local authorities and give the ships direct responsibility for policing the local populations. It is also conceivable that there was a division of responsibility (probably tacit) between the station fleets of different European countries for different portions of an overseas region. (For example, in a region like China one squadron might concentrate its activities at focal points or along the coast in the north, one in the center, and one in the south.) Finally the ships could concentrate their activities on out-of-the-way places like offshore islands or sparsely inhabited bays, with the objective of laying the basis of eventual claims to possession



of these areas. These alternative hypotheses all suggest ambitions for more direct control, and thereby de-emphasize the "informal" in informal empire.

It is also possible that there was no ambition for control of foreign populations or influence over their behavior, and that station fleets were maintained solely to police their own nationals and protect them from the perils of the sea. The essential indicator of such a policy would be the type of actions undertaken, notably a lack of military actions or threats against foreigners and non-intervention in political and legal disputes involving one's nationals and foreign authorities. In addition, there would be little reason for contact between naval officers and diplomats ashore, and such contacts would be few and inconspicuous.

The remainder of this paper describes the patterns of U.S. Navy overseas cruising between 1869 and 1897. These prove to be remarkably consistent with Robinson and Gallagher's description of British activity. U.S. Navy activity on each station had a pronounced tendency to concentrate at a few focal points, which were generally important political and commercial centers.

These ports almost always had a U.S. ship present, and some ships stayed there for months at a time. In addition, the relationship between the navy and U.S. diplomatic representatives overseas was very close. The navy tried to visit all major consulates that were not in areas under European control, and in potential trouble spots it visited the smaller consulates and agencies as well. It frequently provided the consuls direct support, ranging from ceremonial honors to direct involvement in diplomatic negotiations. There was little or no evidence of behavior inconsistent with the concept of informal empire, such as police activity, tacit partitions, or claim staking. All this does not prove that the U.S. was trying to run an informal empire during this period -- such a conclusion could only be based on direct evidence on intentions and motivations. However, it does suggest that the concept of informal empire is one of the most promising ways of explaining American behavior overseas during this period.

These conclusions are based on an analysis of U.S. Navy operations overseas between 1869 and 1897.<sup>3</sup> Normal historical methods, such as recounting significant events or the ideas of naval officers, provide

insights into the problem but cannot supply a systematic overview of actual behavior during the entire 29-year period.<sup>4</sup> There is another form of evidence, however, that can provide such an overview. The station cruisers made all their meaningful contacts with foreign populations during port calls. Fortunately, good port call data are available in the annual reports of the Secretary of the Navy and in the logs of the cruisers in Record Group 24 of the National Archives. From these sources a data base was created containing some 5,980 port calls outside Europe and eastern North America between 1869 and 1897. The patterns of operations described below emerged from the analysis of this data base.<sup>5</sup>

The size of the navy's active cruiser force began at a level of 37 to 41 ships for the period 1869 to 1876. It then fell to 30 to 31 ships and remained very constant at that level from 1877 to 1884. As new steel ships replaced older wooden ones after 1885, the average number of cruisers remained about the same but the yearly totals fluctuated more. Between 1889 and 1894 they declined from 33 to 24 ships, but then returned to around 30.

These cruisers were assigned among five stations:

1. The North Atlantic Station: the east coast of the U.S. and the Caribbean;
2. The European Station: Europe, the Mediterranean, and west Africa as far south as Lunda;
3. The South Atlantic Station: the east coast of South America and west Africa below Lunda;
4. The Pacific Station: the coasts of the Americas and the Pacific islands west to and including Australia;
5. The Asiatic Station: east and south Asia, the Indian Ocean, and the east coast of Africa.

Ships sent on special missions were said to be on special service and were not attached to a squadron even if cruising in its area. Between 1889 and 1892 some of the new steel cruisers were formed into a Squadron of Evolutions, which cruised in North Atlantic and European waters.

The station boundaries remained remarkably constant throughout the period. The only change was the transfer in 1883 of the east coast of Africa and the western Indian Ocean below the equator from the Asiatic to the South Atlantic Squadron, which, it was felt, could more easily reach that area.

This paper will now examine the patterns of operations on each station. It will proceed in a generally easterly direction from West Africa through South America to the Indian Ocean, Asia, and the Pacific.

The North Atlantic and European Stations are excluded from this study because they primarily covered areas inhabited by Europeans.<sup>6</sup> One exception, however, was the west coast of Africa above Luanda, which was part of the European Station. Between 1866 and 1868 the navy made at least 6 cruises to this area to determine if the slave trade had been stamped out. Finding that it had, the navy decided not to reestablish the squadron it had maintained there before the Civil War but to cover the region with periodic cruises from the European Station.

The U.S. Navy maintained a presence on the west African coast for only a part of the period covered by this study, however. There were no visits between 1869 and 1873 except for a single port call at Luanda. Between the latter year and 1887 there were 11 cruises to west Africa. The normal length of these was 2 1/2 months, but three cruises lasted 6 to 8 months. These cruises were fairly regularly spaced at an average of

18-month intervals, except that there was no trip in 1880 and there was an extra trip in 1884 and 1885. There were no visits after 1887 except one cruise to Angola in 1889 to observe an eclipse of the sun and one visit to Walvis Bay in 1894.

The country most often visited on these west African cruises was Liberia, with which the U.S. had long-standing sentimental ties. Of the 11 cruises between 1873 and 1887, all but one called there; and some did so repeatedly, visiting small ports as well as Monrovia. The other ports frequently visited were Gabon, with calls during 8 of the cruises; and Sierra Leone, the Congo River, and Luanda with calls during 6. Between 1 and 3 calls were made during the period in Senegal, the Gambia, the Gold Coast, the Niger River, Fernando Poo, Mayoumba, and Cabinda. All of these places except the last four had U.S. consuls at the time of the visits. The visits ceased in 1887, probably because it was apparant by then that the whole area would soon fall under European colonial rule.

The South Atlantic Station was the smallest of the regularly constituted stations. The normal number of ships committed to this station was 2 to 4. (The num-

ber of ships committed to a station, as I computed it, includes the number of ships actually on the station plus those proceeding to it and on the way home from it to decommission.) This level was departed from only four times. It rose in 1869 during the war of Argentina, Brazil, and Uruguay with Paraguay and in 1893 and 1894 during the Brazilian naval revolution; and it fell to one ship for unknown reasons between July and October 1876 and again between October 1884 and May 1885.

There were two foci of activity on this station, Rio de Janeiro and the Plata Basin. Activity at Rio de Janeiro between 1874 and 1890 and again after 1894 followed a seasonal pattern. Between January and April there was very rarely a U.S. ship there. The first ship of the year would arrive sometime between July and August, though occasionally it would be as late as December. The average visit lasted from half a month to two months, though some ships stayed longer, and overlapping visits lengthened the overall period of U.S. presence. (After 1894 the length of these visits was much less, the longest being 28 days.) The last ship would depart sometime between

August and December, leaving the port empty of U.S. ships until the following year.

The rest of the time, the ships of the station were usually in the Plata Basin. The port visited most often here was Montevideo. The ships also made frequent calls at the nearby Uruguayan ports of Maldonado and Colonia and at the Argentine capital of Buenos Aires. The station commanders made an effort to keep one ship continuously in this area because of the endemic political disorder in both Argentina and Uruguay. Gaps did occur, however, usually between May and October while some ships were at Rio.

Between 1869 and 1877 and again after 1887 the Department maintained on the South Atlantic Station a shallow-draft ship capable of ascending the Parana and Uruguay Rivers. Between 1869 and 1877 two paddle steamers captured in the Civil War, Wasp and Frolic, were used. Beginning in 1887 the double-ender Tallapoosa, the small sloop Yantic, and the new gunboat Castine provided this capability. Except for Frolic (1876-1877), these made a trip up either the Parana or Uruguay Rivers or both once a year while they were on the station. Wasp went to Asuncion, Paraguay, on each



of her seven trips between 1869 and 1874. Tallapoosa went there in 1889, but the rest of the trips after 1887 terminated further downriver, at Rosario or Concepcion on the Parana or at Paysanda on the Uruguay. While not on the rivers, these ships helped maintain the U.S. presence in the Plata region.

Visits to ports besides Rio and the Plata were rare. Between 1869 and 1871 Ticonderoga and Portsmouth made several tours of the northern Brazilian ports, and throughout the period ships transiting to and from the station called at Pernambuco and Bahia. Between Rio and the Plata, calls were made with some regularity at Santos and Santa Catarina -- the latter often for target practice. South of the Plata, there was practically no activity except by ships transiting Cape Horn.

The main U.S. diplomatic posts in the area, including all of the coastal consulates in Argentina and Uruguay, were visited frequently. Many smaller consulates and consular agencies in Brazil received few or no visits, however, due probably to the general lack of turmoil in that country.

In February 1883 the South Atlantic Station took over responsibility for an area previously assigned to its neighbor to the east, the Asiatic Station. This was the east coast of Africa from the Cape of Good Hope to the equator, including Madagascar, the Comoro Islands, and Zanzibar. This region, like west Africa, was covered by occasional cruises. It had once been visited by ships transiting to and from the Asiatic Station, but after 1870 these tended to use the Suez Canal, and, except for one call at Zanzibar in 1872, visits to the region ceased until 1879. In that year Commodore Shufelt, who was circumnavigating the globe in Ticonderoga in support of U.S. trade, signed treaties with local rulers in western Madagascar and in the Comoros and reported that these areas and Zanzibar welcomed more frequent contacts with the U.S. No further visits were made, however, until the area was reassigned to the South Atlantic Station in 1883. Between that year and 1889 there were 7 major trips to the region, but the South Atlantic Squadron was able to make only three of these due to its limited resources and the great distances involved. Three other trips were made by ships transiting to or from the Asiatic Squadron (one of which came from the South Atlantic Squadron), and the seventh was made by a ship

from the European Squadron. Two other ships returning from the Asiatic Station made isolated calls in the area in 1884. Regular trips then ceased, and the only visit between 1890 and 1897 was made in 1894 and 1895 by a gunboat on its way to the South Atlantic Squadron.

The places most often visited were Zanzibar, the island of Nossi Be (then called Johanna) off northern Madagascar, ports near the Hova capital of Tamatave in eastern Madagascar, and ports in the vicinity of Tulear Bay in western Madagascar which was controlled by the Sakalaves. The U.S. had a consul at Zanzibar and at one time had three consular officials in Madagascar, where it hoped to develop trade. However, these hopes were frustrated by warfare between the Hovas and Sakalaves, which led to French intervention in 1883 and to their eventual control of the entire island. Nossi Be became a French protectorate in 1886 and Zanzibar became a British one in 1890. It was probably this expansion of European control that caused regular U.S. Navy visits to the area to cease in 1889.

Even after the reorganization of 1883, the Asiatic Squadron was responsible for an enormous area. Due

primarily to the importance of China and Japan, the strength of the squadron was maintained by the Department at a relatively constant level throughout the period 1869 to 1897. The station began the period with 6 to 8 ships committed, increased to 9 to 11 ships in 1872, returned to 6 to 8 ships in 1874, fell to 5 to 6 ships in 1880, rose to 7 to 9 ships in 1883, declined to 5 to 7 ships in 1886, increased to 8 to 10 ships in 1894, and reached its final level of 6 to 7 ships in 1896. The average strength thus hovered around 6 to 8 ships throughout the period. The Department clearly regarded the station as one of its most important -- it did not allow it to experience a precipitous decline in strength during the period, as did the European and Pacific Stations, and it did not even allow it to decline in proportion to the decrease in the number of cruising ships in the navy.

After 1883 the Asiatic Squadron was responsible for five regions: south Asia (including most of the Indian Ocean), southeast Asia (including the Philippines and Indonesia), China, Japan, and Korea. These fall into two categories: those in which a more or less continuous presence was maintained (China, Japan, and Korea) and those where there were only occasional vis-

its. These will be discussed separately, beginning with the second group.

South Asia was regarded as the least important of the areas assigned to the station, and no systematic effort was made to cover it. The visits that did occur were made almost exclusively by ships transiting to or from China and Japan by way of the Suez Canal, and they tended to concentrate at four major ports: Aden, Bombay, Colombo, and Galle. Only three ships made calls to two or more ports besides these, and of these ships only one (Juniatia in 1883, under the command of George Dewey) made a thorough tour of the coast.

Ships in transit accounted for most of the calls at three of the most important ports in southeast Asia: Penang, Singapore, and Batavia. Southeast Asia was, if not more important, at least a bit closer to the center of activity of the Asiatic Squadron than was south Asia; and for a while special cruises were made from China and Japan to southeast Asian ports that were off the normal transit routes. (Only one of these cruises visited a south Asian port -- Lacakawanna called at Calcutta in 1872.) Fourteen cruises were made that touched at either Bangkok or Saigon. (Ele-

ven went to both.) Seven of these cruises also went to islands in Indonesia and the Philippines. There were 12 more cruises that went just to Indonesia and the Philippines, although nine of these touched at only one port, Manila. Of the 26 special cruises, all but 6 occurred before 1880 -- after that southeast Asia was also covered primarily by ships in transit.

The main ports visited in south and southeast Asia all had U.S. consuls; but so did many others, especially in India, Indonesia, and the Philippines, that were visited infrequently or never. One reason for the lack of U.S. Navy activity in these areas was probably the firm colonial control there by Britain, Holland, and Spain.

In contrast with south and southeast Asia, the Asiatic Squadron attempted to maintain a continuous presence in its remaining areas of responsibility: China, Japan, and (after 1883) Korea. As a rule, China and Japan were assigned a roughly equal number of ships, the number of which depended on the total strength of the squadron. There were, however, periodic variations in strength that generally favored China. The normal pattern was for the contingent in China to be augment-

ed between September and December of each year (usually in October). The reinforcements would leave between March and May of the following year -- if they stayed longer, there was no new augmentation later that year. Two augmentations lasted an abnormally long time: one from October 1879 to March 1881 during Chinese disputes with Japan and Russia, and one from November 1883 to April 1886 during China's war with France over Tonkin. These augmentations were usually distributed relatively evenly along the China coast, the main exception being between 1894 and 1895 during the Sino-Japanese War when they clustered in the north. This pattern was departed from in 1887, 1889, 1890, and 1893 when no augmentations of the force in China were made. In contrast, there were only five major periods in which the number of ships in Japan was substantially higher than that in China, and of these all but the one in 1869 during the Meiji restoration can be attributed to ships undergoing extended periods of repair there. When there was a presence in Korea, it normally consisted of one ship.

For much of this period, foreign activity in China and Japan was limited to a few "treaty ports," and, not surprisingly, navy port calls were concentrated in

these ports. In China there were three foci of activity: Chefoo in the north, Shanghai in the center, and the British colony of Hong Kong in the south. In Japan there were also three: Nagasaki, Kobe, and Yokohama; while in Korea there was one, Inchon (then called Chemulpo). The presence in these focal points was nearly continuous, but patterns of operations in the regions around them differed, so each of these regions will be discussed separately.

The main feature of activity in north China, the region north of Shanghai, was the wintering-over of a gunboat, usually at Tientsin. The ship would arrive around November and not leave until March of the following year. This practice began in 1870 and continued with 8 breaks through 1896. In 1894-1895, during the Sino-Japanese War, two ships wintered over in different ports. During the remainder of the year, U.S. ships in north China tended to operate out of Chefoo. The ports of Newchwang, Tengchow, Tientsin, and Taku each received about 18 visits (excluding winterings-over) -- the last two were on the Peiho River, which led up to Peking. The Sino-Japanese War caused visits to be made to some places not visited before,



such as Darien, Port Arthur, Wei Hai Wei, Jungcheng Bay, and Kiauchau.

In south China, the ships tended to linger at Hong Kong. The only other important port in the area was the treaty port of Canton, and several times a year a ship was sent up from Hong Kong to moor there for a week or two. Only three cruises were made to Chinese ports west of Canton, and these all occurred between 1877 and 1880.

Central China, the region between Shanghai and Hong Kong, was the site of four of the five original treaty ports: Shanghai, Ningpo, Foochow, and Amoy. Another important port, Swatow, was opened to trade in 1869. Ships in this area spent most of their time at Shanghai, where commercial interests were greatest and where good ship repair facilities were available. The other four ports were covered in three ways. Between 1869 and 1886, ships made an average of one 20- to 30-day cruise per year to all or nearly all of them. (Three similar trips were made between 1894 and 1897.) On occasion, longer calls were made in a single port -- these ranged from one at Swatow to five at Foochow. Finally, a number of ships called at these ports while

engaged on special missions, usually concerned with shipwrecks or the suppression of the coolie trade. The result was that the four main ports between Shanghai and Hong Kong were visited fairly often. Some other points along the coast were also visited, but usually only once or twice. Particularly notable was a flurry of visits to the Chusan Islands, off the mouth of the Yangtze, in 1896. A number of visits were made to Formosa, but these tended to be in connection with shipwrecks of U.S. merchantmen, and no effort was made to visit the island regularly.

Ships in central China also had one other important duty -- to patrol the Yangtze River. This was facilitated by the fact that throughout the period the Department maintained several shallow-draft steamers permanently on the Asiatic Station. The Civil War iron side-wheeler Monocacy served there for the entire period 1869-1897, and her sister Ashuelot might have also if a drunken captain had not run her on the rocks in 1883. In 1870 the Civil War tug Palos was specially converted for use on the station, and she served there until 1893 when the new gunboat Petrel was on hand to relieve her. Between 1872 and 1884 these shallow-draft ships made ten trips up the river. Two

of these trips reached the limit of navigable water at Ichang, some 1,000 miles inland; while 5 stopped at Hankow, 1 at Nanking, and 2 at Chinkiang. In addition, three deep-draft ships made trips in 1870 and 1873, Alaska and Hartford getting to Hankow and Iroquois to Chinkiang. Between 1884 and 1889, 5 more trips to these two ports were made by deep-draft ships. In 1890 the frequency of trips up the Yangtze greatly increased -- between 2 and 5 trips were made each year through 1897 by both deep- and shallow-draft ships. Most of the port calls were short, although some ships stayed for extended periods at Hankow and Chinkiang.

In Japan the great majority of port calls was made at three focal points: Nagasaki in the west, Kobe in the Inland Sea, and Yokohama in Tokyo Bay. Ships of the squadron in need of repair were often sent to Yokosuka near Yokohama. Tokyo itself was not visited after 1872. Hakodate was the only other port to be visited with any frequency. Ships transiting between Nagasaki, Kobe, and Yokohama made frequent overnight stops on the way, but these are believed to have been for navigational reasons and it appears they involved no contact with the shore.

The navy's first contact with Korea during this period was a diplomatic mission in 1870, which turned into a major punitive action when some of the U.S. ships' boats were fired upon. There were no further visits there until Commodore Shufelt in Ticonderoga tried in 1880 to negotiate a treaty opening the country to Americans. This effort failed, but a subsequent effort by Shufelt succeeded in May 1882, and the navy lost no time in beginning cruises there -- Monocacy visited four Korean ports between June and August 1882. Korean politics were unstable due to the competition between China and Japan for influence there, and the U.S. naval presence at Inchon (Chemulpo) soon became nearly continuous. No other Korean port was visited with any regularity. To the north, navy ships made nine calls at Vladivostok during the period, but only occasional scientific trips visited other ports along the vast Siberian coast.

Due to the fact that American traders were allowed to do business only in a limited number of treaty ports in China and Japan, it is no surprise that the squadron managed to visit frequently nearly every port with a U.S. consul or agent in those countries. The only

U.S. diplomatic representative in Korea was at Seoul, upriver from Inchon.

We now move east to the Pacific Station. This station usually had the largest number of ships committed to it, but it also had the largest geographic area to cover, and it made a serious effort to cover all of it. During the first few years after the Civil War the force on this station was very large, ranging from 14 to 17 ships. By June 1869 the force level stabilized at 9 to 11 ships, where it remained for the next 4 years. In June 1873 it fell to 6 to 8 ships, and in June 1875 it fell to 4 to 6 ships. With the European Station, this station thus bore the brunt of the overall reduction in numbers of cruising ships experienced by the navy in this period. In July 1878 Rear Admiral C. R. Perry Rodgers took command of the squadron when it was at its low point of 4 ships and pressured a willing new Secretary of the Navy, Richard W. Thompson, into reversing the trend of neglect. In December 1881 the squadron reached the level of 7 to 9 ships, where it remained through 1897. It temporarily rose to 10 to 11 ships between February 1891 and January 1893 due to crises in Chile and the Bering Sea.

The geographic pattern of activity for the Pacific Station was at least as complex as that for the Asiatic Station, since there were five distinct areas of operations (excluding the base in California): the southern Pacific islands, Hawaii, northern North America, the coasts of Mexico and Central America, and the coast of South America. The pattern of operations on these differed not only between geographic region but also between time periods, and they will therefore be discussed separately.

Up to 1887 the intention appears to have been to have at least one ship from the Pacific Squadron make a cruise to the south Pacific islands each year. Through 1873, two or three cruises per year were made, including one long one in each of the first 3 years by a sailing sloop. As the number of ships on station fell, activity tapered off to one cruise per year; and in five of the years before 1887 there were no cruises. In October 1887 unrest in Samoa and an international dispute over the islands caused the U.S. presence there to become essentially continuous, and it remained so through February 1891. USS Iroquois departed the islands for the last time in February 1892, and, aside from one short visit in late 1892,

there were no further visits through 1897 by Pacific Squadron ships to any of the south Pacific islands.

The geographic focus of the cruises in the Pacific islands also changed substantially after 1872. Through that year the cruisers made long voyages touching at many points, including Australia, New Zealand, the Carolines, the Marshalls, the Gilberts, Fiji, Tonga, Samoa, and Tahiti. After 1872 nearly all of the cruisers went to Samoa and about half of them went to Tahiti, but only 5 of the 21 cruisers went to more than one port outside these two island groups. In addition to these cruises from the Pacific Station, there were five between 1881 and 1890 by ships from the Asiatic Station and two by ships on special service, but these did not diverge significantly from the patterns just described.

The purpose of the Pacific island voyages also appears to have changed over time. A number of the early ones were undertaken specifically for hydrographic purposes -- locating and surveying the various islands and running lines of soundings across the Pacific. The later interest in Samoa, however, was clearly political, the mission of the ships being to protect American inter-

ests against disorder in the islands and against European intervention. The crisis there in 1889 led to one of the largest crisis buildups by the old navy, which, as is well known, was broken up by a typhoon.

In the 1870s American interests in the Pacific islands were monitored by consuls in Samoa, Fiji, Tahiti, Australia, and New Zealand; most of which received frequent visits. During the 1880s additional consulates were opened in the Gilberts, the Marshalls, and New Caledonia; but these were infrequently visited.

The second area of activity for the Pacific Squadron was Hawaii. These islands were always considered an important part of the station; and, while for a long time the naval presence there was not continuous, they received frequent visits, including visits by the flagship. After the revolution of 1887 the U.S. naval presence at Hawaii became essentially continuous and the navy became deeply involved in the history of the islands.

One interesting feature of the navy's presence in Hawaii is its relationship to the navy's role elsewhere in the Pacific. While the presence in Hawaii was



still intermittent, it had little connection with the presence in the other islands -- while some of the island cruises started or ended in Hawaii, more of them came directly from San Francisco, Panama, or South America. However, the naval presence in the Samoan crisis, which began shortly after the continuous presence in Hawaii began, was supported almost completely from Hawaii. Of the 15 cruises in the South Pacific after 1887, 10 both originated and terminated in Hawaii while 3 more either originated or terminated there. Perhaps the presence of ships in Hawaii explains why it was no longer felt necessary to make regular cruises to the other islands after 1892.

The third area of activity for the Pacific Squadron was the coast of North America from Puget Sound to Alaska. Presence here was very sporadic in the 1870s, although the navy did assist in some of the initial surveys of the newly-acquired territory and did try to help control the Indians. Beginning in July 1881 one ship was maintained continuously in the vicinity of Sitka, Alaska; and in August 1884 a specially converted tug, Pinta, arrived to assume this duty permanently. In 1891 the Bering Sea patrol was instituted to regulate the seal fisheries, and every summer sev-

eral ships of the Pacific Squadron were sent north for this duty. A peak of 7 ships was reached by this patrol in mid 1892.

With the exception of Samoa and Hawaii, the main activity of the Pacific Squadron occurred in the two areas yet to be discussed, Central and South America. The effort given to Central America (from Mexico to and including Panama) changed little throughout the period. It consisted of a presence of 1 to 2 ships, with frequent interruptions (two of which lasted a year or more).

In Mexico regular calls were made at Guaymas, La Paz, Mazatlan, San Blas, Manzanillo and Acapulco. Visits to these ports were frequent in the 1870s but then tapered off -- only Acapulco received regular calls in the 1890s. In Central America regular calls were made at San Jose in Guatemala; Acajulta, La Libertad and La Union in El Salvador; Amapala in Honduras; Corinto in Nicaragua; Puntarenas in Costa Rica; and Panama, then part of Colombia. In contrast to Mexico, relatively few visits were made to these Central American ports in the 1870s, but many were made in the 1890s. The navy used Panama as a base for its cruisers in both

Central America and South America and was also aware of its importance as a transshipment point and a potential canal route. Visits there were frequent and long throughout the period, and the navy landed troops there in 1873 and 1885 to maintain order during revolutions.

The main Mexican and Central American ports visited all had U.S. consuls or consular agents. There were four other consular ports on this coast, all in Central America, which were visited infrequently. Only a handful of non-consular ports were visited in either Central America or Mexico.

Of all the portions of the Pacific Station, the most attention was given to the west coast of South America. For the first 20 years the presence of the squadron there was continuous, its strength being dependent on the overall size of the squadron. From 1869 to 1873 the number of ships on the South American coast fluctuated between 2 and 6 ships. When the size of the squadron fell in 1873, the number of ships off South America fell to 1 to 3. It remained there until the size of the squadron increased again in 1881, when it rose to 4 to 6 ships. (This increase

was also due in part to the War of the Pacific, in which the squadron monitored closely the Chilean defeat of Bolivia and Peru between 1879 and 1883.) In 1885, however, the size of the squadron began a permanent decline; first to 3 to 5 ships, and then to 1 to 3 ships. In September 1889 the continuous presence off western South America ceased altogether. A temporary presence was established between February 1891 and January 1892 due to crises in Chile, but thereafter visits were very sporadic.

The ports visited most often were Paita and Callao in Peru and Valparaiso in Chile. Callao and Valparaiso were both used as bases -- the squadron maintained a storeship permanently at anchor in Callao until 1884. Other ports frequently visited were Guayaquil in Ecuador; Chimbote and Mollendo in Peru; Arica and Iquique, originally in Peru but annexed by Chile in 1883; and Caldera, Coquimbo, and Talcahuano in Chile.

All of these ports had consular representatives for at least part of the period, and most of the other consular ports received at least a few calls. As in Central America, naval officers worked closely with the

consuls and consular agents -- for example, ships twice responded when consuls were imprisoned.

Having identified the patterns of activity on each of the stations, one can see that there were major differences, both between stations and, in some cases, between regions on a single station. However, some dominant features do emerge. In particular, the most prominent pattern in U.S. Navy cruising in the late 19th Century was the concentration of activity on each station at a few focal points. These foci are easily identified: Rio de Janeiro and Montevideo on the South Atlantic Station; Chefoo, Shanghai, Hong Kong, Nagasaki, Kobe, and Yokohama on the Asiatic Station; and Panama, Paíta, Callao, and Valparaíso on the Pacific Station. The presence at these was nearly continuous -- each received many calls, and some calls were very long, occasionally approaching a year in length. These ports tended to be major commercial centers, and most of them were also major political centers or were near inland political centers.

Even where presence was not continuous or the ports were not large, the navy's behavior generally concentrated at political focal points. An effort was made

to visit all large ports, even if they were not conveniently located, as the special cruises to ports such as Saigon, Bangkok, Manila, and Honolulu show. The navy's visits to smaller ports also tended to follow a focal-point approach in two respects. First, in small countries like those in Central America and in Africa, visits tended to concentrate in a single port, generally the one nearest the political capital. Second, the navy rarely made repeated visits to ports that did not have U.S. consular representatives. Thus, even in visits to smaller ports, naval activity tended to be consistent with the theory of informal empire.

There is little evidence of U.S. Navy activity inconsistent with the concept of informal empire. Some cruises appear to have involved police type activity -- regular visits to many small ports along a coast -- but usually it turns out that these cruises originated from major foci and that most of the ports visited had U.S. consular representatives. The cruises most closely resembling police activity were the river cruises on the Yangtze and in the Plata Basin.

While the navy did not regularly police foreign shores, it remained ready to exercise police functions if trouble broke out. Whenever law and order broke down and American lives and property appeared threatened, the station commanders (or individual ship captains) made every effort to see to it that a U.S. warship appeared as quickly as possible. Sometimes these disorders developed into extended crises which resulted in an extended U.S. naval presence -- Chemulpo and Samoa are examples of such crisis foci. In other cases a quick action by a landing force or the mere presence of the ships was enough to put an end to the trouble. Naval cruising was clearly planned with the possibility of such disorders in mind. In potential trouble areas nearly all U.S. consuls received regular visits, while in calm areas many of the smaller consular agencies saw navy cruisers seldom or never unless they had a concrete need for them. This behavior is consistent with Robinson and Gallagher's statement that law and order was to be achieved through indirect means if possible but through direct action if necessary.

No evidence was uncovered of any tacit partition of overseas regions between foreign fleets. U.S. cruis-

ers maintained a presence in all the major parts of the world throughout the period; and, when a local presence was scaled down, as in the case of western South America, there is no evidence that it was compensated for by increased activity of a European navy. U.S. cruisers visited all the logical foci in east Asia and the Americas, and indications are that European warships tended to concentrate their visits there as well. U.S. cruisers did tend to avoid areas under European colonial rule; but in this case partition was not tacit, it was formal.

There was also very little evidence of claim-staking activities. One case -- the visits to the Chusan Islands off China in 1896 -- may have involved such activity: some naval officers were interested in acquiring a base there. Another case -- the visits to Darien, Wei Hai Wei, and other ports in North China in 1894 and 1895 -- may have involved claim-staking ambitions; but this was more likely the result of an effort to keep abreast of the progress of the Sino-Japanese War and its diplomatic aftermath. The involvement of the navy in Hawaii is complicated by the active advocacy of annexation by the large American population ashore and the inability of the native gov-



ernment to maintain law and order in times of unrest. In general one can say that the U.S. Navy made no serious efforts to lay claim to foreign territory during this period, on its own or at the instigation of the government.

At the other end of the spectrum, the U.S. clearly did not lack interest in controlling or influencing the behavior of foreign populations. Military actions and threats by the navy were not common in this period, but they did occur, most spectacularly in Korea, Panama, and Hawaii. Naval officers frequently intervened with local officials on behalf of Americans in political or legal trouble, and contacts between naval officers and American diplomats were far too frequent, regular, and conspicuous to be accidental. The navy's activities clearly involved the behavior of foreigners as well as Americans.

The U.S. Navy data is thus generally consistent with the concept of informal empire outlined at the beginning of this paper. The concentration of activity at political and economic focal points, where U.S. diplomatic agents were also present, was the appropriate way for the navy to help ensure law and order and se-

cure economic access through the existing local power structure, while preventing European powers (whose ships were also present at the same foci) from obtaining privileges that would exclude Americans. The nature of U.S. naval activity indicates that its objectives were at least in part political. The navy demonstrated an ability to respond to crises and intervene directly to protect life and property when local authority broke down, though it kept such interventions to a minimum. The Open Door notes of 1900 could not have been much of a surprise for the navy -- it had already been following a similar policy for at least thirty years.

## NOTES

1. John Gallagher and Ronald Robinson, "The Imperialism of Free Trade," The Economic History Review, Second Series, Vol. VI, no. 1 (1953), pp. 1-15; Robinson and Gallagher, Africa and the Victorians: The Climax of Imperialism (London: St. Martin's Press, 1961); William Appleman Williams, The Tragedy of American Diplomacy (Revised edition, New York: Dell, 1962); Williams, The Roots of the Modern American Empire (New York, Vintage, 1969).
2. Robinson and Gallagher, Africa and the Victorians, pp. 34-41, 50.
3. The only good work on U.S. Navy overseas cruising in this period is Kenneth Hagan, American Gunboat Diplomacy and the Old Navy (Westport, Conn., 1973). There are a few good works with information on overseas cruising in other periods or by other navies, notably James A. Field, Jr., America and the Mediterranean World 1776-1882 (Princeton, 1969); Gerald S. Graham, The China Station, War and Diplomacy 1830-1860 (Oxford, 1978); and Graham, Great Britain in the Indian Ocean, 1810-1850 (Oxford, 1966).
4. Hagan makes excellent use of this material in his American Gunboat Diplomacy and the Old Navy.
5. This paper does not lend itself to footnoting, since the information in it is based almost exclusively on the data base described in this paragraph and is not to be found in this form in any other source.
6. For comparative purposes, the trends in the size of the squadrons not discussed further in this paper are given here. The North Atlantic Station had a relatively constant level of 5 to 8 cruising ships committed. The main exception was the period 1874 to 1877, when in the aftermath of the Virginus affair its level rose to 10 to 13 ships. It increased to 10 to 11 ships due to new construction in 1889 and again in 1897. It fell momentarily to 1 to 2 ships in 1893 and 1894 when ships were drawn off to reestablish the European Station and handle a crisis in Brazil.

The European Station before 1873 was roughly equal in importance to the North Atlantic Station with a strength of 5 to 8 ships committed. However, in December 1873 the whole squadron was called home for the Virginus affair; and, after it was reestablished in May 1874, its strength fell to 3 to 5 ships. Heavily criticized in Congress due to the lack of a serious military mission for U.S. forces in Europe, its level fell to 2 to 3 ships in 1883 and to zero in May 1890. The gap was filled by a cruise by the Squadron of Evolutions in 1890 and by a few special missions. The Squadron was reestablished in July 1893 and had 1 to 3 ships through 1897.

There were generally 2 to 4 ships on special service, although on special occasions this number rose as high as 10. In addition, a Squadron of Evolutions was formed from the newest ships in the North Atlantic Station in September 1889 and reached a peak of 7 ships in 1891 before its ships were absorbed into the regular squadrons in 1891 and 1892.

## CNA Professional Papers – 1976 to Present\*

- PP 141  
Mizrahi, Maurice M., "Generalized Hermite Polynomials," 5 pp., Feb 1976 (Reprinted from the Journal of Computational and Applied Mathematics, Vol. 1, No. 4 (1975), 273-277).  
\*Research supported by the National Science Foundation
- PP 143  
Horowitz, Stanley and Sherman, Allan (LCdr., USN), "Maintenance Personnel Effectiveness in the Navy," 33 pp., Jan 1976 (Presented at the RAND Conference on Defense Manpower, Feb 1976) AD A021 581
- PP 144  
Durch, William J., "The Navy of the Republic of China – History, Problems, and Prospects," 66 pp., Aug 1976 (Published in "A Guide to Asiatic Fleets," ed. by Barry M. Blechman and Robert Berman, Naval Institute Press) AD A030 460
- PP 145  
Kelly, Anne M., "Port Visits and the "Internationalist Mission" of the Soviet Navy," 36 pp., Apr 1976, AD A023 436
- PP 147  
Kessler, J. Christian, "Legal Issues in Protecting Offshore Structures," 33 pp., Jun 1976 (Prepared under task order N00014-66-A-0091-0023 for ONR) AD A028 389
- PP 149  
Squires, Michael L., "Counterforce Effectiveness: A Comparison of the Tsipis "K" Measure and a Computer Simulation," 24 pp., Mar 1976 (Presented at the International Study Association Meetings, 27 Feb 1976) AD A022 591
- PP 150  
Kelly, Anne M. and Petersen, Charles, "Recent Changes in Soviet Naval Policy: Prospects for Arms Limitations in the Mediterranean and Indian Ocean," 28 pp., Apr 1976, AD A 023 723
- PP 151  
Horowitz, Stanley A., "The Economic Consequences of Political Philosophy," 8 pp., Apr 1976 (Reprinted from Economic Inquiry, Vol. XIV, No. 1, Mar 1976)
- PP 152  
Mizrahi, Maurice M., "On Path Integral Solutions of the Schrödinger Equation, Without Limiting Procedure," 10 pp., Apr 1976 (Reprinted from Journal of Mathematical Physics, Vol. 17, No. 4 (Apr 1976), 566-576).  
\*Research supported by the National Science Foundation
- PP 153  
Mizrahi, Maurice M., "WKB Expansions by Path Integrals, With Applications to the Anharmonic Oscillator," 137 pp., May 1976, AD A026 440  
\*Research supported by the National Science Foundation
- PP 154  
Mizrahi, Maurice M., "On the Semi-Classical Expansion in Quantum Mechanics for Arbitrary Hamiltonians," 19 pp., May 1976 (Published in Journal of Mathematical Physics, Vol. 18, No. 4, pp. 788-790, Apr 1977), AD A026 441
- PP 155  
Squires, Michael L., "Soviet Foreign Policy and Third World Nations," 26 pp., Jun 1976 (Prepared for presentation at the Midwest Political Science Association meetings, Apr 30, 1976) AD A028 388
- PP 156  
Stallings, William, "Approaches to Chinese Character Recognition," 12 pp., Jun 1976 (Reprinted from Pattern Recognition (Pergamon Press), Vol. 8, pp. 87-98, 1976) AD A028 692
- PP 157  
Morgan, William F., "Unemployment and the Pentagon Budget: Is There Anything in the Empty Pork Barrel?" 20 pp., Aug 1976 AD A030 455
- PP 158  
Haskell, LCdr. Richard D. (USN), "Experimental Validation of Probability Predictions," 25 pp., Aug 1976 (Presented at the Military Operations Research Society Meeting, Fall 1976) AD A030 458
- PP 159  
McConnell, James M., "The Gorskov Articles, The New Gorskov Book and Their Relation to Policy," 93 pp., Jul 1976 (Published in Soviet Naval Influence: Domestic and Foreign Dimensions, ed. by M. McGwire and J. McDonnell; New York: Praeger, 1977) AD A029 227
- PP 160  
Wilson, Desmond P., Jr., "The U.S. Sixth Fleet and the Conventional Defense of Europe," 50 pp., Sep 1976, AD A030 457
- PP 161  
Melich, Michael E. and Peet, Vice Adm. Ray (USN, Retired), "Fleet Commanders: Afloat or Ashore?" 9 pp., Aug 1976 (Reprinted from U.S. Naval Institute Proceedings, Jun 1976) AD A030 456
- PP 162  
Friedheim, Robert L., "Parliamentary Diplomacy," 106 pp., Sep 1976 AD A033 306
- PP 163  
Lockman, Robert F., "A Model for Predicting Recruit Losses," 9 pp., Sep 1976 (Presented at the 84th annual convention of the American Psychological Association, Washington, D.C., 4 Sep 1976) (Published in Defense Manpower Policy (Richard V. L. Cooper, ed.), The Rand Corporation, 1979), AD A030 459
- PP 164  
Mahoney, Robert B., Jr., "An Assessment of Public and Elite Perceptions in France, The United Kingdom, and the Federal Republic of Germany," 31 pp., Feb 1977 (Presented at Conference "Perception of the U.S. – Soviet Balance and the Political Uses of Military Power" sponsored by Director, Advanced Research Projects Agency, April 1976) AD A036 599
- PP 165  
Jondrow, James M., "Effects of Trade Restrictions on Imports of Steel," 67 pp., November 1976, (Delivered at ILAS Conference in Dec 1976)
- PP 166 – Revised  
Feldman, Paul, "Why It's Difficult to Change Regulation," Oct 1976, AD A037 682
- PP 167  
Kleinman, Samuel, "ROTC Service Commitments: a Comment," 4 pp., Nov 1976, (Published in Public Choice, Vol. XXIV, Fall 1976) AD A033 305
- PP 168  
Lockman, Robert F., "Revelation of CNA Support Personnel Selection Measures," 36 pp., Nov 1976
- PP 169  
Jacobson, Louis S., "Earnings Losses of Workers Displaced from Manufacturing Industries," 38 pp., Nov 1976, (Delivered at ILAS Conference in Dec 1976), AD A038 609
- PP 170  
Bruchling, Frank P., "A Time Series Analysis of Labor Turnover," Nov 1976, (Delivered at ILAS Conference in Dec 1976)
- PP 171  
Jordan, A. S. and Ralston, J. M., "A Diffusion Model for GaP Red LED Degradation," 10 pp., Nov 1976, (Published in Journal of Applied Physics, Vol. 47, pp. 4518-4527, Oct 1976)  
\*Bell Laboratories
- PP 172  
Classen, Kathleen P., "Unemployment Insurance and the Length of Unemployment," Dec 1976, (Presented at the University of Rochester Labor Workshop on 16 Nov 1976)
- PP 173  
Kleinman, Samuel D., "A Note on Racial Differences in the Added-Worker/Discouraged-Worker Controversy," 2 pp., Dec 1976, (Published in the American Economist, Vol. XX, No. 1, Spring 1976)
- PP 174  
Mahoney, Robert B., Jr., "A Comparison of the Brookings and International Incidents Projects," 12 pp., Feb 1977 AD A037 206
- PP 175  
Levine, Daniel; Stotloff, Peter and Spruill, Nancy, "Public Drug Treatment and Addict Crime," June 1976, (Published in Journal of Legal Studies, Vol. 5, No. 2)
- PP 176  
Felix, Wendi, "Correlates of Retention and Promotion for USNA Graduates," 38 pp., Mar 1977, AD A038 040
- PP 177  
Lockman, Robert F. and Warner, John T., "Predicting Attrition: A Test of Alternative Approaches," 33 pp., Mar 1977, (Presented at the OSD/ONR Conference on Enlisted Attrition, Xerox International Training Center, Leesburg, Virginia, 4-7 April 1977), AD A038 047
- PP 178  
Kleinman, Samuel D., "An Evaluation of Navy Unrestricted Line Officer Accession Programs," 23 pp., April 1977, (Presented at the NATO Conference on Manpower Planning and Organization Design, Strass, Italy, 20 June 1977), AD A038 048

\*CNA Professional Papers with an AD number may be obtained from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. Other papers are available from the Management Information Office, Center for Naval Analysis, 2000 North Beauregard Street, Alexandria, Virginia 22311. An Index of Selected Publications is also available on request. The index includes a Listing of Professional Papers, with abstracts, issued from 1969 to February 1978.

- PP 179  
Stoloff, Peter H. and Sakut, Stephen J., "Vocates: A Model for Personnel Inventory Planning Under Changing Management Policy," 14 pp., April 1977. (Presented at the NATO Conference on Manpower Planning and Organization Design, Stresa, Italy, 20 June 1977), AD A038 048
- PP 180  
Horowitz, Stanley A. and Sherman, Allan, "The Characteristics of Naval Personnel and Personnel Performance," 18 pp., April 1977. (Presented at the NATO Conference on Manpower Planning and Organization Design, Stresa, Italy, 20 June 1977), AD A038 050
- PP 181  
Sakut, Stephen J. and Stoloff, Peter, "An Inventory Planning Model for Navy Enlisted Personnel," 36 pp., May 1977 (Prepared for presentation at the Joint National Meeting of the Operations Research Society of America and The Institute for Management Science, 9 May 1977, San Francisco, California), AD A042 221
- PP 182  
Murray, Russell, 2nd, "The Quest for the Perfect Study or My First 1138 Days at CNA," 57 pp., April 1977
- PP 183  
Kassing, David, "Changes in Soviet Naval Forces," 33 pp., November, 1976, (Published as part of Chapter 3, "General Purpose Forces: Navy and Marine Corps," in Arms, Men, and Military Budgets, Francis P. Hoebler and William Schneider, Jr. (eds.), (Crane, Russak & Company, Inc.: New York), 1977), AD A040 106
- PP 184  
Lockman, Robert F., "An Overview of the OSD/ONR Conference on First Term Enlisted Attrition," 22 pp., June 1977. (Presented to the 39th MORS Working Group on Manpower and Personnel Planning, Annapolis, Md., 28-30 Jun 1977), AD A043 818
- PP 185  
Kassing, David, "New Technology and Naval Forces in the South Atlantic," 22 pp. (This paper was the basis for a presentation made at the Institute for Foreign Policy Analysis, Cambridge, Mass., 28 April 1977), AD A043 819
- PP 186  
Mizrahi, Maurice M., "Phase Space Integrals, Without Limiting Procedures," 31 pp., May 1977. (Invited paper presented at the 1977 NATO Institute on Path Integrals and Their Application in Quantum Statistical, and Solid State Physics, Antwerp, Belgium, July 17-30, 1977) (Published in *Journal of Mathematical Physics* 19(1), pp. 298-307, Jan 1978), AD A040 107
- PP 187  
Coile, Russell C., "Nomography for Operations Research," 36 pp., April 1977 (Presented at the Joint National Meeting of the Operations Research Society of America and The Institute for Management Science, San Francisco, California, 9 May 1977), AD A043 820
- PP 188  
Durch, William J., "Information Processing and Outcome Forecasting for Multilateral Negotiations: Testing One Approach," 53 pp., May 1977 (Prepared for presentation to the 18th Annual Convention of the International Studies Association, Chase-Park Plaza Hotel, St. Louis, Missouri, March 16-20, 1977), AD A042 222
- PP 189  
Coile, Russell C., "Error Detection in Computerized Information Retrieval Data Bases," July, 1977, 13 pp. (Presented at the Sixth Cranfield International Conference on Mechanized Information Storage and Retrieval Systems, Cranfield Institute of Technology, Cranfield, Bedford, England, 26-29 July 1977), AD A043 880
- PP 190  
Mahoney, Robert B., Jr., "European Perceptions and East-West Competition," 96 pp., July 1977 (Prepared for presentation at the annual meeting of the International Studies Association, St. Louis, Mo., March, 1977), AD A043 881
- PP 191  
Sawyer, Ronald, "The Independent Field Assignment: One Man's View," August 1977, 25 pp.
- PP 192  
Holen, Arlene, "Effects of Unemployment Insurance Entitlement on Duration and Job Search Outcome," August 1977, 6 pp., (Reprinted from *Industrial and Labor Relations Review*, Vol. 30, No. 4, Jul 1977)
- PP 193  
Horowitz, Stanley A., "A Model of Unemployment Insurance and the Work Test," August 1977, 7 pp. (Reprinted from *Industrial and Labor Relations Review*, Vol. 30, No. 40, Jul 1977)
- PP 194  
Clausen, Kathleen P., "The Effects of Unemployment Insurance on the Duration of Unemployment and Subsequent Earnings," August 1977, 7 pp. (Reprinted from *Industrial and Labor Relations Review*, Vol. 30, No. 40, Jul 1977)
- PP 195  
Brachling, Frank, "Unemployment Insurance Taxes and Labor Turnover: Summary of Theoretical Findings," 12 pp. (Reprinted from *Industrial and Labor Relations Review*, Vol. 30, No. 40, Jul 1977)
- PP 196  
Ralston, J. M. and Lorimer, O. G., "Degradation of Bulk Electroluminescent Efficiency in Zn, O-Doped GaP LED's," July 1977, 3 pp. (Reprinted from *IEEE Transactions on Electron Devices*, Vol. ED-24, No. 7, July 1977)
- PP 197  
Wells, Anthony R., "The Centre for Naval Analyses," 14 pp., Dec 1977, AD A048 107
- PP 198  
Clausen, Kathleen P., "The Distributional Effects of Unemployment Insurance," 25 pp., Sept. 1977 (Presented at a Hoover Institution Conference on Income Distribution, Oct 7-8, 1977), AD A054 423
- PP 199  
Durch, William J., "Revolution From A F.A.R. - The Cuban Armed Forces in Africa and the Middle East," Sep 1977, 16 pp., AD A046 268
- PP 200  
Powers, Bruce F., "The United States Navy," 40 pp., Dec 1977 (Published as a chapter in *The U.S. War Machine* by Salamander Books, England, 1978), AD A048 108
- PP 201  
Durch, William J., "The Cuban Military in Africa and The Middle East: From Algeria to Angola," Sep 1977, 67 pp., AD A045 675
- PP 202  
Feldman, Paul, "Why Regulation Doesn't Work," (Reprinted from *Technological Change and Welfare in the Regulated Industries*, Brookings Reprint 219, 1971, and *Review of Social Economy*, Vol. XXIX, March, 1971, No. 1.) Sep 1977, 8 pp.
- PP 203  
Feldman, Paul, "Efficiency, Distribution, and the Role of Government in a Market Economy," (Reprinted from *The Journal of Political Economy*, Vol. 79, No. 3, May/June 1971.) Sep 1977, 19 pp., AD A045 675
- PP 204  
Wells, Anthony R., "The 1967 June War: Soviet Naval Diplomacy and The Sixth Fleet - A Reappraisal," Oct 1977, 36 pp., AD A047 236
- PP 205  
Coile, Russell C., "A Bibliometric Examination of the Square Root Theory of Scientific Publication Productivity," (Presented at the annual meeting of the American Society for Information Science, Chicago, Illinois, 29 September 1977.) Oct 1977, 6 pp., AD A047 237
- PP 206  
McConnell, James M., "Strategy and Missions of the Soviet Navy in the Year 2000," 48 pp., Nov 1977 (Presented at a Conference on Problems of Sea Power as we Approach the 21st Century, sponsored by the American Enterprise Institute for Public Policy Research, 6 October 1977, and subsequently published in a collection of papers by the Institute), AD A047 244
- PP 207  
Goldberg, Lawrence, "Cost-Effectiveness of Potential Federal Policies Affecting Research & Development Expenditures in the Auto, Steel and Food Industries," 36 pp., Oct 1977. (Presented at Southern Economic Association Meetings beginning 2 November 1977), AD A046 269
- PP 208  
Roberts, Stephen S., "The Decline of the Overseas Station Fleet: The United States Asiatic Fleet and the Shanghai Crisis, 1932," 18 pp., Nov 1977 (Reprinted from *The American Neptune*, Vol. XXXVII, No. 3, July 1977), AD A047 245
- PP 209 - Classified.
- PP 210  
Kassing, David, "Protecting The Fleet," 40 pp., Dec 1977 (Prepared for the American Enterprise Institute Conference on Problems of Sea Power as We Approach the 21st Century, October 6-7, 1977), AD A048 109
- PP 211  
Mizrahi, Maurice M., "On Approximating the Circular Coverage Function," 14 pp., Feb 1978, AD A054 429
- PP 212  
Mangel, Marc, "On Singular Characteristic Initial Value Problems with Unique Solutions," 20 pp., Jun 1978, AD A058 535
- PP 213  
Mangel, Marc, "Fluctuations in Systems with Multiple Steady States. Application to Landshower Equations," 12 pp., Feb 78, (Presented at the First Annual Workshop on the Information Linkage Between Applied Mathematics and Industry, Naval PG School, Feb 23-25, 1978), AD A071 472

- PP 214  
Weinland, Robert G., "A Somewhat Different View of The Optimal Naval Posture," 37 pp., Jun 1978 (Presented at the 1978 Convention of the American Political Science Association (APSA/IUS Panel on "Changing Strategic Requirements and Military Posture"), Chicago, Ill., September 2, 1978), AD A056 228
- PP 215  
Coile, Russell C., "Comments on: Principles of Information Retrieval by Manfred Kochen," 10 pp., Mar 78, (Published as a Letter to the Editor, Journal of Documentation, Vol. 31, No. 4, pages 298-301, December 1975), AD A054 426
- PP 216  
Coile, Russell C., "Lotka's Frequency Distribution of Scientific Productivity," 18 pp., Feb 1978, (Published in the Journal of the American Society for Information Sciences, Vol. 28, No. 6, pp. 366-370, November 1977), AD A054 425
- PP 217  
Coile, Russell C., "Bibliometric Studies of Scientific Productivity," 17 pp., Mar 78, (Presented at the Annual meeting of the American Society for Information Science held in San Francisco, California, October 1978), AD A054 442
- PP 218 - Classified.
- PP 219  
Huntzinger, R. LaVar, "Market Analysis with Rational Expectations: Theory and Estimation," 60 pp., Apr 78, AD A064 422
- PP 220  
Maurer, Donald E., "Diagonalization by Group Matrices," 26 pp., Apr 78, AD A054 443
- PP 221  
Weinland, Robert G., "Superpower Naval Diplomacy in the October 1973 Arab-Israeli War," 76 pp., Jun 1978 (Published in Seapower in the Mediterranean: Political Utility and Military Constraints, The Washington Papers No. 61, Beverly Hills and London: Sage Publications, 1979) AD A056 564
- PP 222  
Mizrahi, Maurice M., "Correspondence Rules and Path Integrals," 30 pp., Jun 1978 (Invited paper presented at the CNRS meeting on "Mathematical Problems in Feynman's Path Integrals," Marseille, France, May 22-26, 1978) (Published in Springer Verlag Lecture Notes in Physics, 106, (1979), 234-253) AD A056 536
- PP 223  
Mangel, Marc, "Stochastic Mechanics of Molecular Reaction Reactions," 21 pp., Jun 1978, AD A056 227
- PP 224  
Mangel, Marc, "Aggregation, Saturation, and Extinction in Exploited Animal Populations," 48 pp., Mar 1978, AD A056 536  
"Portions of this work were started at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, B.C., Canada
- PP 225  
Mangel, Marc, "Oscillations, Fluctuations, and the Hopf Bifurcation," 43 pp., Jun 1978, AD A056 537  
"Portions of this work were completed at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, Canada.
- PP 226  
Ralston, J. M. and J. W. Mann, "Temperature and Current Dependence of Degradation in Red-Emitting GaP LEDs," 34 pp., Jun 1978 (Published in Journal of Applied Physics, 50, 3630, May 1979) AD A058 538  
\*Bell Telephone Laboratories, Inc.
- PP 227  
Mangel, Marc, "Uniform Treatment of Fluctuations at Critical Points," 50 pp., May 1978, AD A058 539
- PP 228  
Mangel, Marc, "Relaxation at Critical Points: Deterministic and Stochastic Theory," 54 pp., Jun 1978, AD A058 540
- PP 229  
Mangel, Marc, "Diffusion Theory of Reaction Rates, I: Formulation and Einstein-Smoluchowski Approximation," 50 pp., Jan 1978, AD A058 541
- PP 230  
Mangel, Marc, "Diffusion Theory of Reaction Rates, II Ornstein-Uhlenbeck Approximation," 34 pp., Feb 1978, AD A058 542
- PP 231  
Wilson, Desmond P., Jr., "Naval Projection Forces: The Case for a Responsive MAF," Aug 1978, AD A058 543
- PP 232  
Jacobson, Louis, "Can Policy Changes Be Made Acceptable to Labor?" Aug 1978 (Submitted for publication in Industrial and Labor Relations Review), AD A061 528
- PP 233  
Jacobson, Louis, "An Alternative Explanation of the Cyclical Pattern of Quites," 23 pp., Sep 1978
- PP 234 - Revised  
Jondrow, James and Levy, Robert A., "Does Federal Expenditure Displace State and Local Expenditure: The Case of Construction Grants," 25 pp., Oct 1978, AD A061 529
- PP 235  
Mizrahi, Maurice M., "The Semiclassical Expansion of the Anharmonic-Oscillator Propagator," 41 pp., Oct 1978 (Published in Journal of Mathematical Physics 20 (1979), pp. 844-855), AD A061 538
- PP 237  
Maurer, Donald, "A Matrix Criterion for Normal Integral Bases," 10 pp., Jan 1979 (Published in the Illinois Journal of Mathematics, Vol. 22 (1978), pp. 672-681)
- PP 238  
Utgoff, Kathleen Glesser, "Unemployment Insurance and The Employment Rate," 20 pp., Oct 1978 (Presented at the Conference on Economic Indicators and Performance: The Current Dilemma Facing Government and Business Leaders, presented by Indiana University Graduate School of Business), AD A061 527
- PP 239  
Trost, R. P. and Warner, J. T., "The Effects of Military Occupational Training on Civilian Earnings: An Income Selectivity Approach," 36 pp., Nov 1979, AD A077 831
- PP 240  
Powers, Bruce, "Goals of the Center for Naval Analysis," 13 pp., Dec 1978, AD A063 758
- PP 241  
Mangel, Marc, "Fluctuations at Chemical Instabilities," 24 pp., Dec 1978 (Published in Journal of Chemical Physics, Vol. 69, No. 8, Oct 15, 1978), AD A063 787
- PP 242  
Simpson, William R., "The Analysis of Dynamically Interactive Systems (Air Combat by the Numbers)," 160 pp., Dec 1978, AD A063 760
- PP 243  
Simpson, William R., "A Probabilistic Formulation of Murphy Dynamics as Applied to the Analysis of Operational Research Problems," 18 pp., Dec 1978, AD A063 761
- PP 244  
Sherman, Allan and Horowitz, Stanley A., "Maintenance Costs of Complex Equipment," 20 pp., Dec 1978 (Published By The American Society of Naval Engineers, Naval Engineers Journal, Vol. 91, No. 6, Dec 1979) AD A071 473
- PP 245  
Simpson, William R., "The Accelerometer Methods of Obtaining Aircraft Performance from Flight Test Data (Dynamic Performance Testing)," 403 pp., Jun 1979, AD A075 226
- PP 246  
Breschling, Frank, "Layoffs and Unemployment Insurance," 35 pp., Feb 1979 (Presented at the NBER Conference on "Low Income Labor Markets," Chicago, Jun 1978)
- PP 248  
Thomas, James A., Jr., "The Transport Properties of Dilute Gases in Applied Fields," 183 pp., Mar 1979
- PP 249  
Glasser, Kenneth S., "A Secretary Problem with a Random Number of Choices," 23 pp., Mar 1979
- PP 250  
Mangel, Marc, "Modeling Fluctuations in Macroscopic Systems," 26 pp., Jun 1979
- PP 251  
Trost, Robert P., "The Estimation and Interpretation of Several Selectivity Models," 37 pp., Jun 1979, AD A075 941
- PP 252  
Nunn, Walter R., "Position Finding with Prior Knowledge of Covariance Parameters," 5 pp., Jun 1979 (Published in IEEE Transactions on Aerospace & Electronic Systems, Vol. AES-15, No. 3, March 1979)
- PP 253  
Glasser, Kenneth S., "The d-Choice Secretary Problem," 32 pp., Jun 1978, AD A075 225
- PP 254  
Mangel, Marc and Quenbush, David B., "Integration of a Bivariate Normal Over an Offset Circle," 14 pp., Jun 1979
- PP 255 - Classified, AD 8061 441L
- PP 256  
Maurer, Donald E., "Using Personnel Distribution Models," 27 pp., Feb 1980, AD A082 218

- PP 257  
Thaler, R., "Discounting and Fiscal Constraints: Why Discounting is Always Right," 10 pp., Aug 1979, AD A075 224
- PP 258  
Mangel, Marc S. and Thomas, James A., Jr., "Analytical Methods in Search Theory," 86 pp., Nov 1979, AD A077 832
- PP 259  
Glass, David V.; Hsu, Ih-Chung; Nunn, Walter R. and Perin, David A., "A Class of Commutative Markov Matrices," 17 pp., Nov 1979, AD A077 833
- PP 260  
Mangel, Marc S. and Cope, Davis K., "Detection Rate and Sweep Width in Visual Search," 14 pp., Nov 1979, AD A077 834
- PP 261  
Vile, Carlos L.; Zvijac, David J. and Ross, John, "French-Canadian Theory of Chemical Dynamics. VI. Angular Distributions of Reaction Products," 14 pp., Nov 1979 (Reprinted from Journal Chem. Phys. 70(12), 15 Jun 1979), AD A076 287
- PP 262  
Peterson, Charles C., "Third World Military Elites in Soviet Perspective," 50 pp., Nov 1979, AD A077 835
- PP 263  
Robinson, Kathy I., "Using Commercial Tankers and Containerships for Navy Underway Replenishment," 25 pp., Nov 1979, AD A077 836
- PP 264  
Weinland, Robert G., "The U.S. Navy in the Pacific: Past, Present, and Glimpses of the Future," 31 pp., Nov 1979 (Delivered at the International Symposium on the Sea, sponsored by the International Institute for Strategic Studies, The Brookings Institution and the Yomiuri Shimbun, Tokyo, 16-20 Oct 1978) AD A066 837
- PP 265  
Weinland, Robert G., "War and Peace in the North: Some Political Implications of the Changing Military Situation in Northern Europe," 18 pp., Nov 1979 (Prepared for presentation to the "Conference of the Nordic Balance in Perspective: The Changing Military and Political Situation," Center for Strategic and International Studies, Georgetown University, Jun 15-16, 1978) AD A077 838
- PP 266  
Utgoff, Kathy Classen, and Brechling, Frank, "Taxes and Inflation," 25 pp., Nov 1979, AD A081 194
- PP 267  
Trost, Robert P. and Vogel, Robert C., "The Response of State Government Receipts to Economic Fluctuations and the Allocation of Counter-Cyclical Revenue Sharing Grants," 12 pp., Dec 1979 (Reprinted from the Review of Economics and Statistics, Vol. LXI, No. 3, August 1979)
- PP 268  
Thomason, James S., "Seaport Dependence and Inter-State Cooperation: The Case of Sub-Saharan Africa," 141 pp., Jan 1980, AD A081 193
- PP 269  
Weiss, Kenneth G., "The Soviet Involvement in the Ogaden War," 42 pp., Jan 1980 (Presented at the Southern Conference on Slavic Studies in October, 1979), AD A082 219
- PP 270  
Remnek, Richard, "Soviet Policy in the Horn of Africa: The Decision to Intervene," 52 pp., Jan 1980 (To be published in "The Soviet Union in the Third World: Success or Failure," ed. by Robert H. Donaldson, Westview Press, Boulder, Co., Summer 1980), AD A081 195
- PP 271  
McConnell, James, "Soviet and American Strategic Doctrines: One More Time," 43 pp., Jan 1980, AD A081 192
- PP 272  
Weiss, Kenneth G., "The Azores in Diplomacy and Strategy, 1940-1945," 46 pp., Mar 1980, AD A085 084
- PP 273  
Nakada, Michael K., "Labor Supply of Wives with Husbands Employed Either Full Time or Part Time," 39 pp., Mar 1980, AD A082 220
- PP 275  
Goldberg, Lawrence, "Recruiters Advertising and Navy Enlistments," 34 pp., Mar 1980, AD A082 221
- PP 276  
Goldberg, Lawrence, "Delaying an Overhaul and Ship's Equipment," 40 pp., May 1980, AD A085 095
- PP 277  
Mangel, Marc, "Small Fluctuations in Systems with Multiple Limit Cycles," 19 pp., Mar 1980 (Published in SIAM J. Appl. Math., Vol. 38, No. 1, Feb 1980)
- PP 278  
Mizrahi, Maurice, "A Targeting Problem: Exact vs. Expected-Value Approaches," 23 pp., Apr 1980, AD A085 096
- PP 279  
Walt, Stephen M., "Causal Inferences and the Use of Force: A Critique of Force Without War," 50 pp., May 1980, AD A085 097
- PP 280  
Goldberg, Lawrence, "Estimation of the Effects of A Ship's Steaming on the Failure Rate of its Equipment: An Application of Econometric Analysis," 25 pp., April 1980, AD A085 098
- PP 283  
Dismukes, Bradford, "Expected Demand for the U.S. Navy to Serve as An Instrument of U.S. Foreign Policy: Thinking About Political and Military Environmental Factors," 30 pp., April 1980, AD A085 099
- PP 284  
J. Kellson,\* W. Nunn, and U. Sumits,\*\* "The Laguerre Transform," 119 pp., May 1980  
\*The Graduate School of Management, University of Rochester and the Center for Naval Analyses  
\*\*The Graduate School of Management, University of Rochester, AD A085 100
- PP 285  
Remnek, Richard B., "Superpower Security Interests in the Indian Ocean Area," 26 pp., Jun 1980
- PP 286  
Mizrahi, Maurice M., "On the WKB Approximation to the Propagator for Arbitrary Hamiltonians," 25 pp., Aug 1980
- PP 287  
Cope, Davis, "Limit Cycle Solutions of Reaction-Diffusion Equations," 325 pp., June 1980
- PP 288  
Robinson, Jack, "Adequate Classification Guidance - A Solution and a Problem," 7 pp., August 1980
- PP 290  
Watson, Gregory H., "Evaluation of Computer Software in an Operational Environment," 17 pp., Aug 1980
- PP 292  
Thomas, Jr., James A., "The Transport Properties of Binary Gas Mixtures in Applied Magnetic Fields," 10 pp., Sept 1980 (Published in Journal of Chemical Physics 72 (10), 15 May 1980)
- PP 293  
Thomas, Jr., James A., "Evaluation of Kinetic Theory Collision Integrals Using the Generalized Phase Shift Approach," 12 pp., Sept 1980 (Printed in Journal of Chemical Physics 72 (10), 15 May 1980)
- PP 294  
Roberts, Stephen S., "French Naval Policy Outside of Europe," 30 pp., Sept 1980 (Presented at the Conference of the Section on Military Studies, International Studies Association, Kiawah Island, S.C.)
- PP 295  
Roberts, Stephen S., "An Indicator of Informal Empire: Patterns of U.S. Navy Cruising on Overseas Stations, 1888-1887," 40 pp., Sept 1980 (Presented at Fourth Naval History Symposium, US Naval Academy, 26 October 1979)